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THE AGRICULTURAL STUDENT

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— *P. M. Sharples*

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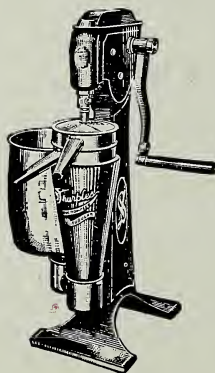
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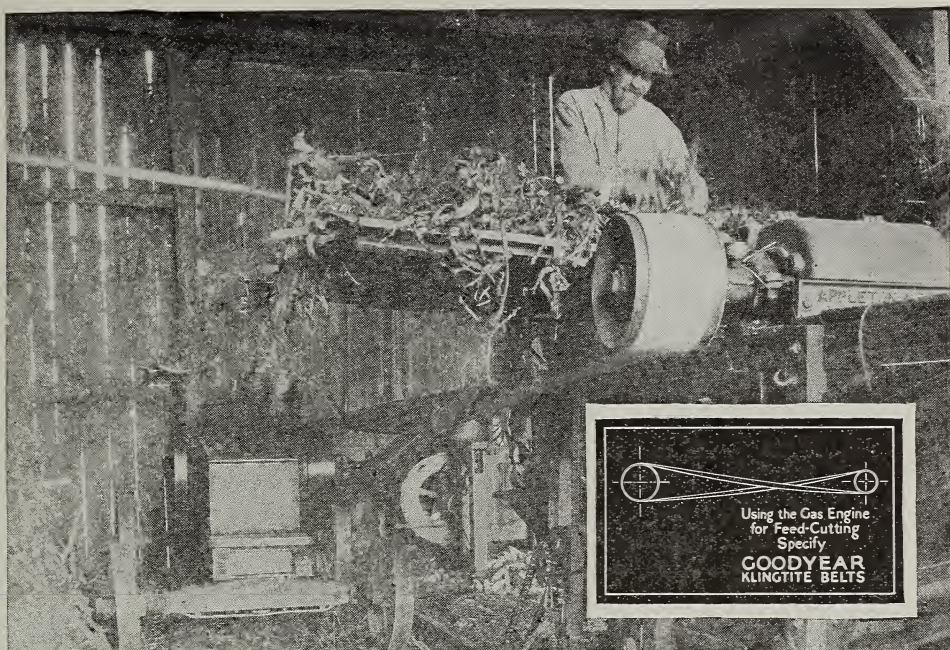
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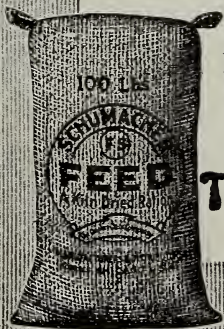
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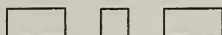
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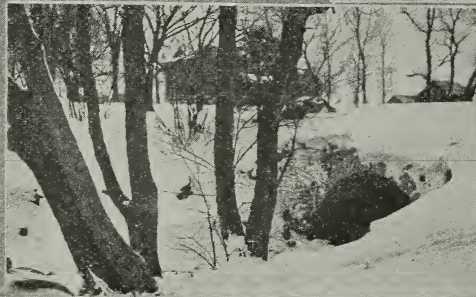
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THE
CAMPUS

IN
WINTER



The Agricultural Student

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No. 4

THE ART OF GROWING CROPS

By F. E. BEAR, Professor of Soils, Ohio State University.

(Below you find presented a different view on the above subject than you would ordinarily expect.)

STOCKMEN say "the eye of the master fattens his cattle." From this we assume that the Ph. D. in animal nutrition might find it difficult to compete with the experienced livestock feeder who knows less of the science but more of the art of animal feeding. Undoubtedly it is the man who can combine both the art and the science who deserves the title of "master." The art comes only with long years of practice in fitting animals for the stock show or the market and from association and competition with other men equally experienced.

The same principle holds true in producing first quality fruits and flowers or in growing large yields of grain or hay. There is an art and a science in growing plants. In good part the success of European farmers, in securing yields approximately twice those of this country on soils farmed for centuries before America was discovered, can be explained from the fact that the art of farming from these same soils and growing these same crops has been practiced and handed down thru many generations.

One of the characteristic traits of the American farmer is his insistence on growing the crops he desires to grow rather than the crops to which his soil and climate are best adapted. There are, of course, many exceptions to this general statement, but for the most

part the farmer attempts to fit the soil to the crop rather than the crop to the soil.

Gradually crops are becoming established around centers where the conditions for their growth are most favorable. We are being forced to accept the principle that each crop is best adapted to certain soil and climatic conditions. Economic ruin stares the man in the face who attempts to set aside this principle, unless the selling price is sufficiently high to enable his overcoming the handicap thru the development of suitable environment by artificial means.

There is no point at which the art of growing plants applies better than in the selection and use of fertilizing materials. Fertilizer science teaches that nitrogen, phosphorus, potassium and limestone applied to soils deficient in these materials give increased yields of crops. But the farmer who has been fertilizing intelligently for a quarter or a half century has learned to use the plant as a guide. To every outside stimulus the plant manifests a characteristic response which only the experienced can interpret. Carefully controlled laboratory experiments do not serve as infallible guides since the conditions in the field are never twice the same. Each farm is a problem in itself and the nearby experimental farm cannot answer all of its questions.

Such matters as the quality of the product or the time of maturity are subject to the control of the artisan. It is a well known fact that Nature is able to change the same variety of apple so as to make it almost unrecognizable, depending upon the climatic and soil conditions under which it is grown. The master pomologist chooses the best possible environment obtainable and then succeeds in improving Nature's methods by adjusting this en-

but when and how to take care of the fertilizer needs of his crops. He does not follow the "rule of thumb" but his fertilizer practice is determined by the soil, the season, the crop to be grown and by the market demands. So many factors enter into consideration as to make it impossible to qualify except thru experience. A scientific background for this experience is, however, not to be underestimated.

To the man who knows the art of



THERE IS REAL "ART" IN PRODUCING CROPS LIKE THE ABOVE

vironment thru culture and fertilizer treatment. Changes can be affected in color, flavor, size and texture of the fruit. The master gardener knows when and how to apply fertilizers to produce the quality of vegetable which brings the highest price on the market. He may fertilize to be first to market or he may depend upon the quality of his product to win in the competition.

The man who is capable of growing 100 bushels of corn or 50 bushels of wheat or luxuriant fields of alfalfa knows not only how much and what,

growing plants the interpretation placed on the ordinary fertility experiments are not entirely satisfactory. He is not so much interested in averages over a given number of years as he is to the response which the plant gave to fertilization under certain definite seasonal and soil conditions. Exact fertilizer experimentation by its very exactness defeats its own purpose which is to determine what is the best fertilizer practice. Experienced cattle feeders recognize that no two animals respond alike to the same feeds. But

in the feeding of animals it is possible to control most of the other factors which might affect their growth. With plants the problem is more difficult since variations in climatic factors are the rule and while a practice may be good one season it may be far from satisfactory another.

Clermont County, Ohio, had an exceptionally poor crop of corn in 1919. There were hundreds of acres of corn in the county which did not produce 25 bushels and in many cases the yields were less. The explanation may lie in the Corn Root Rot, in exceptionally unfavorable seasonal conditions or in a combination of these two. The question arises as to what would have been the most logical fertilizer treatment to have followed. It might be argued that we are never to predict what the sea-

son will be and yet the fertilizer treatment might, in part or at least, go hand in hand with the season.

The art of fertilizing or of farming comes only with experience, preferably built on a scientific foundation. It cannot be learned in the agricultural college nor can it be learned on most farms as they are now managed. There is need of studying the practice of the most successful farmers whose long years of experience have given them an insight into Nature which might well be coveted by the less experienced college student. The art of farming discovers what the science of farming must later explain. The man who can combine the most of both science and art in his practice is the man who best qualifies in the profession.

STUDYIN' PRETTY HARD

By C. F. CHRISTIAN, '23

IT'S pretty nice to have a room like I got. There's electric light and one of those steam things that hisses and thumps. This room's mighty fine long toward evenin' when the rain spatters on the window and the whole sash shakes and 'round the cracks the wind sifts thru. But I have to study pretty hard on a night like this or I get to thinkin' 'bout the home folks.

The house sets in a hollow where you can't see the neighbors. 'Taint so far to their place over the hill, but right smart 'round the road. The "old part," that's the kitchen now, is most like it was when Grand-ther went to farmin'. The old part's stood up right well too; and it's got the best grate in the whole house. That's why the folks mostly sets out there when the rain spatters on the window and 'round the cracks the wind sifts thru.

Pa most generally likes to get his sock feet close to the hearth where Shep's layin' all stretched out. Ma usually is mendin' somethin' and don't say much except to ask the boys maybe "how they get so many holes in their knees." The boys is awful still for them while they set and watch the coal lumps bust with a pop that's soft and rich; not much like that steam thing. You hear it? Kind o' hard and sharp. Nor there ain't no jumpin' blue flames like in the grate back home in the old part.

Pa'll probably be tellin' 'bout the new neighbor on the corners that ain't got his corn shucked yet. He can't see why folks putter round like that. But mostly there ain't much said when the rain spatters on the window and the whole sash shakes.

After while Pa gets restless and goes

out to the entry and gets the lantern that's turned 'way down low. He asks Ma kind o' mysterious where that big tin pan is. Then he goes down cellar for an awful long time. The boys squirm round so as they can see and get real still. You can hear somethin' thumpin' real soft in the big tin pan. He moves so slow to the entry and hangs the lantern up and turns it down just so, and then—Gee! he's been 'way back in the corner where the barrel of Pippins is.

The grate in the old part is just a dandy place for Pippins. The cores

disappear in the coals so easy; and nobody knows how many's gone till the last one's left. Then Pa looks down and gets the last one and lets on he's real surprised. "Land sakes! Where's all those Pippins? You boys'll have to stick to Russets for a spell." 'Bout that time old Shep wakes up and looks at my chair and sort o' whines and whacks his tail down on the old loose brick that makes the most noise. Yes, sir! I have to study pretty hard when the rain spatters on the window and the whole sash shakes, and round the cracks the wind sifts thru.

"JUST A WEE BIT SCOTCH THAT'S A'."

By WILBUR H. FORD, '20

Oh, bonnie Scotland,
Gie me back my heart.
I didna' ken ye had it
Till the hour we part.

IT must be the smell of the heather and furze that does it, or maybe it's the bleating of black faced lambs far away up the hill slope together with the startled whirr of pheasants rising from their hiding place almost at your feet. It may even be the kind genial hospitality of the people, or possibly the bonnie red cheeked lassies themselves. Whatever it is, it must be the big, silent, irresistible something that makes you like a thing in spite of yourself. If you are an outdoors man and have ever camped in the deep woods, you may know what it is that causes you to fall in love with the woods voices. If you were raised in the country, you may know what it is that always calls you back if only for your holiday. So it is, that to me the land of the kilted Highlander will always remain more than a mere memory, as it calls me back with a forcing charm.

There is a peculiar attraction about

the bleak brown hills and you can't mistake it. Here it is that you will find the hardy little blackface in large numbers, tended only by a long haired collie and his shepherd master. It is little wonder that Scott's heroes were rugged men. Standing on the bare rock of Ellen's Isle in Lock Katrine, bordered by the steep slopes of Ben A'an and Ben Venue, you can readily picture Douglas and Rhoderick Dhu with their clansmen in wait among the heather.

However, this is only one view of a country that today is the source of our really good Shorthorn, Angus, and Galloway cattle together with the Clydesdale horse.

The very opposite is to be seen through the level country, in the way of the picturesque. Beginning with Dumfries in the southwest and extending in a half circle to the east coast and then north to Iverness, will be found the only really agricultural land, as almost two-thirds of the entire country is too rough and broken for farming. Within this comparatively level belt will be found such cities as Glasgow, Ayr,

Edinburgh, Perth, Dundee, Aberdeen and Elgin. Here it is that one finds men who have been devoted to livestock for generations. It may be sheep or cattle or horses. It is sure to be one of them.

Swine quite naturally find no place in the economic schedule of the Scotch



TWO OF DUTHIE'S BULLS AT TILLYCAIRN.

farm. Scotch weather is conducive to growing only the small grains and root crops along with the pasture grasses, so it is that the hog is a mere side line produced only for home consumption. You would recognize forcefully how pork has corrupted the American taste, after having mutton at least once a day during the entire stay in Scotland, since much more mutton is consumed than either pork or beef.

Scotland is a small place as we judge area and distance, which may have something to do with the close relationship existing between the farmers and breeders. Well developed systems of cooperation are partly responsible as well as the fact that nearly all are interested in the same thing. However, as with most old world countries the practice usually is "what was good enough for grandfather suits me." Now this principle works out wonderfully well in Scotland because grandfathers way of producing better livestock happens to

have been so good that little improvement can be made. In a way, many of the breeders have about all they can do just carrying on the work their ancestors left them.

This is especially true of the breeding standards as established for the Scotch Shorthorn by the worthy old bachelor Amos Cruickshank. Sittyton in Aberdeenshire, where Amos and his brother Anthony placed the breed in the preeminent position it occupies today, is the shrine at which all Scotch Shorthorn men worship. Before Cruickshank's time, line breeding was run to death and it was no unusual thing for Booth or Bates cattle to bring three or four thousand guineas. Cruickshank thought too much was being made of the pedigree craze and set about forming a breed that would be more typical of Scotland. His theory was that an animal should carry its pedigree on its back, and he followed it so successfully that it keeps William Duthie and James Durno as well as scores of other breeders busy just maintaining the enviable standard.

It seems fitting that William Duthie another bachelor, should take it upon



A HIGHLAND EWE AND LAMB.

his shoulders to carry on where Cruickshank left off. However, it was largely due to accident that Scotland today has the Cruickshank foundation. It may

have been a trick of Fate playing in their favor all the time, but upon the death of Amos, his cattle representing the achievements of a lifetime were sent to the seaboard for shipment to America, simply because he had not yet convinced the thorough Scotch farmers that he had found the right principles in his breeding work. It was only when a financial crisis overcame the man in control of the shipment and he was compelled to sell before he could get the animals across the Atlantic, that a couple of Scotchmen who had always been interested in Cruickshank's work, decided it would be a disgrace to let such animals get entirely out of the country. So William Duthie and W. S. Marr purchased nearly all the young stock and have devoted their lives to maintaining and improving the Scotch Shorthorn as we know it today.

On the 5th of last April, I had the unique opportunity of inspecting some of the finest Shorthorns in the world at Collynie and Tillycairn, Mr. Duthie's farms, and at Upper Mill, home of James Durno, who is carrying on Mr. Marr's work. These farms are located about 24 miles north of Aberdeen and are in sight of the coast of the North Sea. The county is typically Scotch, all fences being of granite boulders placed together without any building material. The only timber is a sort of Norway spruce which does not reach a diameter above 15 inches. The land, however, is well kept, is very fertile and is of a blackish, peaty structure.

The first stop was made at Tillycairn where all the Cruickshank animals are kept. These are strictly for meat production and are enormous big broad animals with an astonishing depth of chest and spring of rib. If one of the cows can raise a calf to eight months, that is all that is expected of her in the

way of milk production. In fact a number of grade Shorthorns are kept to supply the milk for the family.

Mr. Duthie's nephew is residing on the home farm of Collynie, where Duthie formerly lived and developed a home that is becoming more and more popular every year in the Shorthorn world. Collynie is situated at the tip of a bit of rolling country from which a good view is obtained for miles.

Altogether Mr. Duthie has a hundred head of breeding cows, all of the finest pedigree. These are kept in good flesh at all times although he rigidly makes it a practice never to show an animal. All trace back to such noted ancestors as Fairy, Missy, Violet, Orangeblossom, Lavender, Broadhooks and Crocus.

The only objection that could be found with any of Mr. Duthie's animals may perhaps be voiced for the breed as a whole, in that they are inclined to get patchy at the tail head when fed to a high condition. Duthie does not advertise as his name is known wherever a Shorthorn is shown. He holds an annual bull sale at which his animals all sell exceptionally well. He is simply "carrying on" Cruickshank's work and is a firm believer that the animals should show their pedigree to the eye. However, family counts a lot in judging and pricing the animals, everything else being equal.

Duthie, strange as it may seem, advised us in all seriousness not to commit the same mistake he had made, that is to remain bachelors. He said, however, that he couldn't pay proper attention to two interests at the same time, and as his cattle required most attention, he naturally has only cattle to companion his old age. He is a very jolly Scotchman, a strict Presbyterian, and is interested in other things as well as cat-

tle. Although he does none of the actual work, he is about one of the farms nearly every day, going out from the village of Tarves in his machine. He accompanied us to the neighboring farm of Upper Mill.

Mr. Durno's stock is all descended from Cruickshank foundation and is fully as good as Duthie's. Mr. Ross of Carpenter & Ross, Mansfield, Ohio, had just been there a few days before on his regular buying trip. He had purchased a roan bull eleven months old from Mr. Durno for exportation to the States, and was at that time waiting transportation. Duthie was very short on young stock so he could get nothing from him.

These two herds are of particular interest because they are the oldest in the country, both carrying on the Cruickshank traditions. There are now many breeders of shorthorns all over Scotland, some with larger herds and prize winning individuals, but they all contain animals that trace back through these two old herds to the famous Cruickshank.

During the tea hour, and by the way four o'clock tea is an institution in all Scotch homes, Mr. Duthie was induced to give us a few educative notes drawn from his experiences. He gave what he termed his reasons for foreign buyers from America and the Argentine especially, taking all their surplus stock animals. He frankly admitted that the United States could outclass them in the production of females, but he would not admit that the equal of a Scotch shorthorn bull could be found anywhere in the world unless he originally came from Scotland. Briefly, according to Mr. Duthie, we are anxious to buy and willing to pay for their bulls simply because they are in the business of producing bulls. A man

who devotes all his life to producing a single good thing, is bound to produce that article better than the man who divides his time among two or three. To prove it, he said they had a hard time keeping back enough animals to supply their own herds.

It is interesting to note the enthusiasm that is displayed toward pure bred stock everywhere you go among the Scot. It makes no difference if the man is only a tenant, (the majority of the breeders over there are tenant farmers) and has but a few animals, you will find the wife just as enthusiastic, just as interested in all the animals, and just as good a judge of quality as the husband. That is what I consider cooperation in the home and is one of the very strongest factors in making the sales after the animal is produced. The canny Scot does not talk price at all until after he has introduced you to his partner and to huge pots of tea and plates of scones dripping with strawberry jam. Then the sale is made in the house before the cheery open fire while the men smoke. It makes no difference whether you are a prospective buyer or merely a visitor, the same open hearted genuine homey hospitality holds forth, and you can't get away until you have been introduced to every member of the family, and made to feel eternally grateful toward the feminine side for satisfying that ever present hunger brought about by a climate that is noted for producing fighting men and vigorous livestock. You can't go into a Scotch home without being made to feel perfectly at ease. Our own southern people have long been noted for their hospitality, but I am sincere in saying that they could learn something in that line from our Scotch cousins.

(Continued on page 190)

MILK AS AN INDISPENSABLE FOOD TO BOTH GROWTH AND HEALTH

By R. C. FISHER, Professor of Dairy Husbandry, Connecticut State College

(Few of us realize how valuable a food milk is. The following article gives some recent experiments regarding some of the important constituents of milk.)

“DRINK MILK. Drink more milk. Pure fresh, rich milk is a food fit for the gods. Babies cannot live without milk and growing children grow the faster for it. It gives vitality to youth, power to middle life, and to old age it brings a goodly portion of the health and strength of former years. It should be used more largely by people of all ages, classes and conditions. Milk steadies the nerves and adds to the health, physical strength and mental energy of those who use it. It excels coffee and with it tea is not to be compared. We may drink it at meals. It is delicious, refreshing, invigorating. It is one of Nature's best gifts to man.” No less an authority than the United States Department of Agriculture is responsible for such a statement.

We have no reason to doubt Uncle Sam's word, for it is backed up by actual experience. Not of a few, but of whole nations. One of the first acts of the Germans was to rob the people of Belgium and Northern France almost wholly of their cattle. There is no cruelty greater to the population than to rob them of their dairy-stock. Wherever dairy-stock was driven off, there were found multitudes of sickly and dying infants. For children, milk is indispensable and for grown-ups an essential and economic food. And still dairy products have not been generally considered food products.

Milk has been used as a beverage; butter and cheese as incidentals, and never any of them considered as a food product, while in truth and in fact they

are the most economical of food products and, as the Government has demonstrated, a five-cent lunch of bread and milk has more food value than the best fifteen-cent meat soup lunch that can be provided under the present prices of meat. The popular idea is that a food must be something solid, something you can set your teeth into and do some chewing. How misleading such an idea is will be realized when we compare the composition of some solids. For instance, take a turnip; it is made up of 89 percent water, while milk contains 87 percent or 2 percent less. Nevertheless, the turnip is a solid, while milk is a fluid. The difference is in the condition in which the solids exist. The solids of the turnip are insoluble and mostly woody and indigestible, while the solids in milk are in solution and readily assimilated by the digestive system.

This reminds me of a story: A sailor on the Maine coast ran into harbor one night and bought a couple of chops at a meat, grocery and dry goods store. He fell into talk with an old skipper, who asked what he was going to do with those things, and replied that he was to have them for breakfast. “Don't you do it,” said the skipper, “If you're going sailin', they'll digest on you. You take doughnuts. They'll set on your chest and nourish you all day.” That is just the difference between liquid milk and solid turnips; one digests, the other spends time “settin'” on your chest.

WHY MILK IS SUCH AN IMPORTANT FOOD.

Dr. Osborn of the Connecticut Experiment Station, a recognized authori-

ty in nutrition, has done some wonderful work in connection with milk and I want to tell you something of his work.

To be of maximum nutritive value, a food must contain five food principles. The first in importance, as suggested by its name, which means "I take the first place," are the proteins. Then there are carbohydrates, fat, minerals, and water. The chief purpose of the proteins is to form tissue. In the process of digestion these proteins are broken down into what the chemists call amino acids. From these amino acids the body takes what it needs; in other words, the amino acids act as building stones do in building a wall or a house. But not all stones will serve for building stones. Certain ones are especially adapted for corner stones and without these corner stones the building cannot be completed or made into a strong structure. As corner stones are needed for the building of a house, so Dr. Osborn has proven that certain of these amino acids or life-building stones are needed for building the body. These life-building stones or amino acids have proven to be absolutely necessary to maintain life and promote growth. The two most vital ones (forgive the hard names) *tryptophane*, which is absolutely necessary to life and *lysine* which is essential for growth. If Dr. Osborn fed his white albino rats on a diet which contained neither tryptophane nor lysine, the rats would die in a short time. If he fed them with only tryptophane present, the rats would live but would not grow; that is, a twenty weeks' old rat would be as small as a baby rat just a few days old. As soon as lysine was added the rat would start to grow and attain normal size and be as happy as any rat in the family. Next Dr. Osborn and his assistants set out to find the foods which

were rich in these life-growing substances and they were found most abundant in the protein of milk. When feeding his rats on a diet of one-third milk-protein and two-thirds wheat-protein the rats gained four times as fast as when the protein was supplied by wheat only.

MILK FAT AND VITAMINES.

The next important food principle is fat. Dr. Osborn and others have carried on experiments along these lines also. He took a litter of rats and fed half of them on an otherwise complete diet, except that the fat was supplied by oleomargarine. The other half of the litter were fed on exactly the same feed, except that the fat was supplied by real dairy butter. The rats dependent on the oleomargarine did not develop but remained as poor, sickly-looking specimens. Their eyes became running sores, and they had no excuse to live whatever. On the other hand, their brothers and sisters fed on genuine butter developed into thrifty normal rats. The only difference was the one had oleo; the other genuine butter.

Now what makes butter so valuable as to make it of vital importance to the health and welfare of the human race? It is the presence of certain substances known as vitamins, which are absolutely necessary to life. Of these vitamins there are three types:

1. Fat soluble vitamins, largely present in butterfat and to a lesser extent in cod liver oil.

2. Water soluble vitamins, largely present in milk and also in green matter of plants, as spinach, alfalfa and clover.

3. Anti-scorbutic vitamin or anti-scurvy vitamins; these also are largely present in milk and also in fruits and vegetables, as lemons, oranges, beets, etc. The anti-scorbutic vitamins are

easily destroyed by heat; for instance, when feeding the baby on pasteurized milk or condensed milk, the doctor frequently advises to use orange juice in connection with these products. This is because the anti-scurvy vitamins are easily destroyed by heat and are again supplied in the orange juice. To bring out the importance of the different vitamins, one of the rats fed on the oleo diet was fed some of the water soluble vitamins by means of a medicine dropper. He at once recovered and became more lively, but would not grow. Then he was supplied with both the fat soluble and the water soluble vitamins and in twelve days stood for his picture. He is frisky and happy and gained more in twelve days than in two months previous.

THE MILK WAY IS THE HEALTH WAY.

Now what does all this come to? For infants and growing children of course milk is indispensable. Impaired digestion, weak assimilation and disordered nerves are largely the "original sin of the old theologian," for they create abnormal cravings which are the seeds of all kinds of intemperance. Wholesome feeding in infancy and childhood increases morality just as it lessens mortality. It is not the infants who die from malnutrition that are the greatest menace to society. It is rather those who live in spite of malnutrition.

For the children of the very poor I

believe an abundant supply of milk will go further to promote health than improved housing and more air and sunlight, though all are greatly needed.

But grown-ups also need abundant milk and butter with their foods. Let us get rid of this idea, that milk is simply a pleasant drink but not a real food. Most of us would economize food and cut our meat bills if we made more use of milk as a considerable part of our diet. It will not "set on your chest and nourish you" all night as a Welsh rarebit or a lobster Newberg will "set." It will not excite your heart action for a little while and then depress it as alcohol does? Nor is it like the near beers, "Bevo" and the rest, which the colored man said "looks like beer and tastes like beer but when it gets into your stomach seems like it ain't got no authority." In the words of the Maine skipper, "it will digest on you quickly and easily." When you are tired there is nothing that will brace you up so quickly as a glass of milk.

As Herbert Hoover said: "Wherever dairy stock was driven off by the cruel Hun, there was left a multitude of sickly and dying infants." Whenever dairy stock comes back there will follow in its train healthy and happy children. I am rather inclined to agree with an enthusiastic friend who says that public health and civilization follow the Dairy Cow.

O. S. U. STUDENT BRANCH OF AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS

By O. R. KEYSER, '22

THE American Society of Agricultural Engineers is made up of professional educators, professional engineers, and practical men who are of acknowledged eminence in the profession of Agricultural Engineering.

The society holds its meetings once each year at Chicago. This year it was held December 29, 30 and 31. The object of the society is to promote the science of agricultural engineering. After the various matters of business

have been taken up and disposed of, the remaining time is devoted to the reading and discussion of professional papers. These papers are prepared by the members on important agricultural engineering subjects. The substance of these proceedings are printed in the official publication known as the "Transactions of the Society." A copy of this publication is placed in the hands of every member.

The A. S. A. E. has Student Branch organizations located at the University of Nebraska, Mississippi Agricultural College, Iowa State College, Kansas Agricultural College, and Ohio State University.

The Student Branch organization at Ohio State was organized November 19. It now has four honorary members, 25 paid-up members and 15 associate members. Honorary members are the members of the faculty of the Department of Agricultural Engineering. Members are those who have completed six credit hours of work in the Department. Associate members are those who are interested in agricultural engineering and expect to later take up the work of the department but who have yet not completed the required six hours' work.

The honorary members of this branch are Professor Harry C. Ramsower, former head of the department; Professors P. B. Potter and G. W. McCuen; and Professor F. W. Ives, who is the present head of the department and First Vice-President of the national organization of American Society of Agricultural Engineers.

The officers of the Student Branch are: D. S. Weaver, '20, President; A. M. Hedge, '21, Vice-President; Geo. Kreitler, '20, Secretary-Treasurer.

Regular sessions are held every two weeks. After a brief business transac-

tion papers prepared by members of the organization, on appropriate agricultural engineering subjects, are read and discussed. This forms a medium for the discussion of interesting topics by the members of the branch. And it is of inestimable value to them not only in their present college work but it will build a solid foundation for them on which their future prominence, in the Agricultural Engineering World, will rest. It is vitally important that every student, who is interested in agricultural engineering, should be a member and a live wire in the organization. If one does not have the requirements to be a member then he should identify himself as an associate and reap the benefits of the branch. Students! Prepare yourself for the future if you want to occupy some position of distinction in your chosen profession. Men of professional eminence will occasionally be present to take part in the discussions at the students' meetings.

One of the activities of the Student Branch will be a Tractor Show during the entire Farmers' Week. This show will be conducted entirely by the Student Branch under the direction of the Department of Agricultural Engineering. The Department has built a new prony brake so that they will be able to conduct two tests at the same time. Each tractor will be given a three-hour test and two tractors will be tested each half day. In this way four tractors will each be given a three-hour test each day.

A part of the time the test will be on a fluctuating load, part time on full load and the remainder of the time will be a test on over load.

Twenty-two tractors have been entered for the show. and so an absolute-

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OHIO STATE'S JUDGING TEAM

"IT was a long grind," so said the boys of Ohio State's Judging Team as they finished the Students' Judging Contest held at the International, November 29, 1919. But, it was a grand experience and no one wants back one cent of his money or one minute of his time spent in preparation. Previous to going to Chicago, the Team visited Edward's and Rosenberger's Shorthorn herds at Tiffin, Mr. Butler's Percherons at Sandusky, W. H. Pew's Shorthorns and Polands at Ravenna, Carpenter & Ross's Shorthorns at Mansfield and Bell Brothers' Percherons and Belgians at Wooster.

The team composed of Don C. Drake, Warren T. McVey, Geo. B. Arthur, Lawrence A. Kauffman, E. King Edwards, and Geo. F. Henning left Columbus November 23 for Purdue University. Here they judged Poland-Chinas, Duroc-Jerseys, Angus, Shorthorns and Herefords. While at Lafayette they judged Percherons and Herefords of the firm of J. Crouch & Son. The team next journeyed to Jess Andrews at West Point, Indiana, where some of the best work of the season was done on Shropshires. The next stop was at the University of Illinois where the team worked on Percherons, Shorthorns, and Angus. By this time the team had placed about 105 rings of stock and ended their preparation for the contest.

When the results of the contest were made known Ohio State had landed in eighth place with 18 teams competing. Texas was first with 4119 points out of a possible 5000. The first ten teams and ratings follow: Nebraska 4103, Kansas 4059, Iowa 4047, Purdue 3946, Minnesota 3909, Oklahoma 3899, Ohio 3859, Missouri 3811, and North Dakota 3767.

With 92 students competing Weideburg of Nebraska was high man in the contest with 889 points out of a possible 1000. Garlock of Oklahoma and Moulton of Nebraska with 878 points each were tied for second place. Henning was high man on the Ohio team and stood eighteenth in the contest with 819 points; McVey was 24th in the contest with 801 points; Drake was 44th with 759; Arthur 50th with 741, and Kauffman was 53rd with 739. Even though Kauffman was low man on the team in total averages of all classes judged, he was the high man of the contest in cattle with 239 points out of a possible 250.

The experience in preparation for a contest is great and while it cost each man about \$125 anyone who is interested in Animal Husbandry considers his money well spent. While Ohio finished eighth, let us hope that we have a team next year that will stand higher when the smoke of the contest has cleared away.

STUDENTS' APPLE SHOW

By ALVIN W. BARR, '20.

THE Eighth Annual Apple Show of the Students' Horticultural Society of the Ohio State University was held Dec. 11, 12 and 13. There were no shows in 1917 or 1918 due to a

shortage of coal at the University and existing war conditions.

The idea of holding an annual apple show was started in 1910. The Horticultural Department had on hand

about fifty plates of real nice apples from the Ohio Experiment Station and Profs. Paddock and Montgomery decided to give the boys a little surprise by putting them on display at one of their regular Horticultural Society meetings. After looking them over and discussing the possibilities of an apple show, L. E. Melchers, a student, suggested that the apple show be made an annual affair and that it be run by the students. And on Dec. 7 and 8, 1911, the first students' apple show was held and was a real success as each succeeding show has been.

The display of fruit this year was the largest and best in quality ever exhibited. There were 350 plates and 70 trays of Ohio grown fruit besides a collection of 100 plates by the Ohio Experiment Station, a 24-box display of western apples and a large exhibit of diseased and insect-infected fruit loaned by the Departments of Zoology and Botany. There was also an exhibit a few plates of apples from California, Oregon, Idaho, Maryland, Vermont and New Hampshire and it was interesting to note the difference between the apples of the same varieties from the different states. Mr. Robt. L. Knight sent up a collection of citrus fruits, nuts, sugar cane, moss and various Southern field crops from Pensacola, Florida. Mr. Knight is a graduate of the Horticultural Department and is now engaged in the citrus fruit industry. The expenses of the show were met by the sale of the fruit at auction the last night of the show and by the sale of advertising space in the premium list. The fruit, vegetables and pies were auctioned off by Mr. P. W. Elliott of Columbus and amounted to nearly \$210.00. The auction was well attended, not alone by the students, but many of the residents of the

University district were there with their baskets and the bidding was spirited thruout the entire evening and not until the last tray of apples was put up for sale was the climax reached.

There were 38 exhibitors of fruit and vegetables in the students' and growers' classes and premiums amounting to \$475.00 were given, about \$120.00 of this being cash and the remainder was in the form of donations given by 33 firms interested in the manufacture or sale of products which concern the fruit grower.

Sweepstakes were given in both the students' and growers' fruit and vegetable classes. Alvin W. Barr, Senior Agriculture, of Stoutsville, Ohio, was winner of the students' fruit sweepstakes, thus winning the silver loving cup given by Pres. W. O. Thompson as well as nearly \$75.00 in premiums. The premiums were awarded according to points, the highest number of points being 550, and the second highest was 250 won by R. Bretz, Senior Agriculture, of Columbus, Ohio, whose premiums amounted to nearly \$45.00. The fruit was judged by Mr. Paul Thayer of the Ohio Experiment Station, Wooster, Ohio.

A. D. Swingle, Senior Agriculture, of Columbus, Ohio, was winner of the students' vegetable sweepstakes and came into possession of a silver loving cup given by The Goodman Brothers Co., jewelers, of Columbus, Ohio. A. T. Haag, Senior Agriculture, of Cleveland, Ohio, took second place in the students' vegetable class. In the growers' classes T. J. Huffman of Lancaster, Ohio, was winner of the apple sweepstakes with C. E. Dutton of Carroll, Ohio, coming second. E. Vick of Columbus, Ohio, won the vegetable sweepstakes with Prof. L. M. Mont-

(Continued on page 168)



OF
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BACK FROM VACATION.

Vacation is over and once more we have returned to our job. Now is our opportunity to put in some good turns and get everything in shape so we can look forward to next semester with real zeal, anticipation and determination. We all should feel refreshed, rested, and fairly itch to get back to our work. Unless you so feel your vacation has not been for what it was intended. Some of us have loafed, some have worked on the farms, some have occupied their minds with other jobs, but we all should feel that it is the best thing to get back to school, put our shoulders against the wheel and watch the University start rolling again, for it has been dead so to speak. The heat has been turned off from the buildings, the doors have been closed, for it was vacation. It has seemed strange to some of us who have come back a while before

the day of opening that so big an institution could be so inactive and in a day be bubbling over in its activity. But such is the case. And it merely shows that if one wants to keep up and not fall behind he has got to give the best that is in him.

Final examinations are here and it is up to you and me to meet them and do our best and then look forward to next semester with the attitude that we have gotten all out of our past work, rather than with the attitude I would have done different if I only could have something to do over again.

HOWDY, SHORT COURSE MEN.

The time of year has again arrived when our friends from the farm are with us once more. We are mighty glad to have you even though you can only be here for eight weeks. We are sorry that everything is so crowded and possibly you may not get the attention and instruction that would be yours if not so many were enrolled in the University for now we are a family of over 6000.

However, crowded as conditions are, we want you to feel that we are glad that you are here and offer you our hand in a great big hand-shake. We want you to feel at home and we are ready to help you any time. This is your school just as much as ours and it is up to you to get all that is possible in the few weeks that you are here. So don't be afraid to go to things. Suppose you watch the Basket Ball games, see the team in action, go to whatever else may be going on, get all you can while you are here, and if you have time drop into the Student office in Ohio Union.

THE QUESTION OF MARKETING.

One present day problem facing the public is, how after produce has been grown on the farm may it be marketed cheaply to the consumer. There is no individual who wants to deprive the producer of the cost of his product plus a reasonable profit. All of us know that we must live. What we do want to see is this, that produce go as directly as possible to the consumer. There are certain steps that everything must pass through that comes from the farm and goes to the consumer, but often these steps are increased and in no way are they justified.

Whenever an operation or step costs more than is just or an extra one thrown in that should not be, right then is when an added cost is put on the consumer.

It is the duty of all to study this marketing problem so that we are familiar with its phases, to be able to think for ourselves and sooner or later a method will be worked out which will be more satisfactory than the old method.

FARMERS' WEEK AT O. S. U.

By FRANK C. DEAN, College of Agriculture.

ENOUGH detail of the eighth annual Farmers' Week program at the Ohio State University, from January 26 to 30, had developed when this was written to indicate that the program this year promises to be more pointed and effective than ever.

In general, the plans are much the same as usual, but several new features have been introduced to different portions of the program.

One of the most unusual exhibits will be that of several railway express coaches equipped with household conveniences. This material will be shown previous to a tour of several weeks over the New York Central Lines to different parts of Ohio. The object of the display is to stimulate the use of modern equipment in rural homes.

The annual corn and grain show will be held in the armory in order that more space can be devoted to the increased number of exhibits. Additional trophies and several hundred dollars in prizes are being offered.

For the first time in the history of the affair, commercial fertilizer men of prominence are to have an important part on the soils program. They will attempt to answer questions relating to what the farmers may expect next season regarding the supply and price of fertilizer, and give a general survey of the status of the industry at the present time.

The crops program includes a seed testing course lasting the entire week and daily grain grading demonstrations, in addition to the usual number of speakers. One of the interesting sessions of this section will be the conferring of membership on ten candidates in the 100 Bushel Corn Club of Ohio.

These men will attempt to tell briefly how they achieved their high yields.

An extension course in beekeeping, comprising several lectures by specialists of the U. S. Department of Agriculture, will be a feature of the annual meeting of the Ohio beekeepers.

The usual meetings of the state horticultural society, vegetable growers association, as well as the annual meetings of several of the livestock, dairy, and other organizations are expected to be scheduled.

The liveliest meeting is likely to be that of the Ohio Farm Bureau Federation. Questions of finances, future policies, and the ratification of the constitution of the recently organized American Farm Bureau Federation are to come up for consideration.

The 11 o'clock, 4 o'clock, and evening meetings are designed as formerly to be of general interest. The 11 o'clock periods of the first four days will be given over to President Thompson, Dean Alfred Vivian, Mrs. A. E. Bridgen of Rochester, N. Y., and Gov. Jas. M. Cox, respectively. On Friday, awards will be made to the boys' and girls' club winners.

The illustrated world tour lectures by Dean Vivian will be given again each afternoon at 4 o'clock.

On Monday evening a concert by the Venedocia Glee Club, a group of 32 Welsh singers living in the vicinity of Venedocia, has been scheduled. Lectures will be given on Tuesday and Wednesday evenings by President W. O. Thompson and Dean A. R. Mann of the New York State College of Agriculture, respectively. On Thursday evening a musical program will be in

(Continued on page 168)



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AGRICULTURAL DEPARTMENT, NEW YORK.

SOCIETY AG. ENGINEERING

(Continued from page 161)

ly successful demonstration is expected.

Students of the advanced courses in the Department and who are members of the Student Branch will make up the crews to operate the prony brakes and record the tests.

It is expected to make this tractor show an annual affair. In addition to this, plans are being made for a tractor demonstration in the spring sometime before the University closes.

FARMERS' WEEK AT O. S. U.

(Continued from page 166)

charge of Mrs. Nell Bunnell Smith of Columbus. Those remaining for Friday evening will be entertained with motion pictures. Movies will also be given each day during the noon hour.

The usual program for women, consisting of both lectures and demonstrations, is being schedule.

Programs are expected to be ready for distribution early in January. They may be had on application to the Agricultural College Extension Service, Ohio State University, Columbus.

STUDENTS' APPLE SHOW

(Continued from page 163)

gomery of the Horticultural Department, Ohio State University, taking second place. Mr. M. M. Miesse of Lancaster, Ohio, did the judging of the vegetables.

Besides the exhibits of fruit and vegetables a pie baking contest was held and the number of entries totaled 32. About \$20.00 were given away in prizes and some of the winners were: Sigma Pi Fraternity chef, first prize; Mrs. Lena Gheen, University Hospital, Columbus, Ohio, second prize, and H. S. Judy, 215 S. Scioto St., Columbus, Ohio, third prize. The judging of the

(Continued on page 190)

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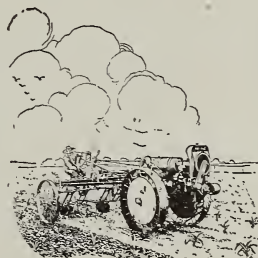
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FARMERS' WEEK

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pies was done by Mrs. C. W. Foulk of Columbus, Ohio.

Another feature of the show was the booth where cider, apples, doughnuts and home-made apple and pumpkin pies were on sale all the time. It seemed that everybody came to the show hungry and thirsty and were surely satisfied before they left for 120 gallons of cider and nearly 100 pies besides quantities of apples and doughnuts were sold.

On Friday afternoon there was a reunion of the graduates and ex-soldiers and sailors of the Horticultural Department in connection with the Apple Show and a great many of the older men were back. Then on Friday evening the Horticultural Department Faculty gave a banquet honoring the graduates and ex-service men. About 75

were in attendance. Following the banquet was a short program arranged by the students of the Horticultural Department which included the demobilization of the service flag and the unveiling of the memorial tablet. The

(Continued on page 172)



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FARMERS' WEEK

(Continued from page 170)

program was followed by short addresses by Dean Alfred Vivian of the Agricultural College, and a number of the Alumni present, with Alvin W. Barr, as President of the Students' Horticultural Society, acting as toastmaster.

On Saturday afternoon a students' judging contest was held. Eleven students were entered and the scoring was very close. A. P. French, Junior Agriculture, of Medina, Ohio, won first place and besides winning a \$5.00 prize has his name engraved on the Horticultural Society cup. Geo. E. Trisler, Junior Agriculture, of Cincinnati, Ohio, won second place and A. D. Swingle, Senior Agriculture, of Columbus, Ohio, won third place.

The total receipts of the show, including the auction, sale of advertising

in the premium list and sales from the cider booth, amounted to \$610.00, which was used for defraying the expenses of the show and for paying the expenses of the Apple Judging Team to the Inter-college Fruit Judging Contest at New Brunswick, New Jersey.

The total attendance at the show was something over 5000 and it proved to be the most successful Apple Show, in every respect, ever held at the University.

GLEANINGS FROM THE SESSION OF THE OHIO STATE GRANGE

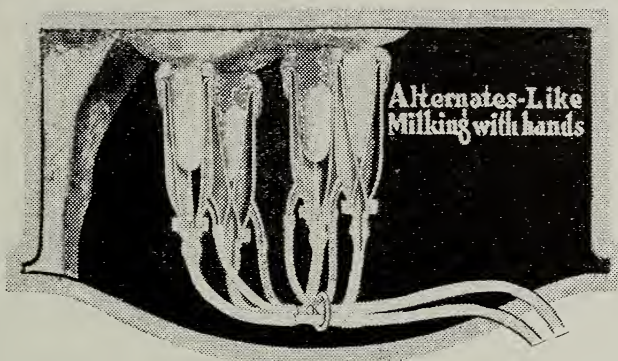
University Grange No. 1620 held a reception in the Armory, December 9th, for the Ohio State Grangers who were then convening in Columbus for their regular annual session. Apparently, the bad weather did not stop the farmers, for the Armory was well filled. Professor Alfred C. Hottes, of the Department of Horticulture, was the chairman of the meeting and had charge of the evening program. Some of the interesting features of the entertainment were: Kofoid M. Allen's Imitation of a Sermon; A Class in Stock Judging by the Saddle and Sirloin Club; Two Minstrels from the Department of Agricultural Engineering presented a miniature pig with "some new jewelry;" Townshend Agricultural Society Quartet ably rendered a few songs; and Professor Hottes gave an entertaining talk accompanied by some skilful art cartooning. At the conclusion of the program every one formed in the "chow line" and received an excellent buffet lunch.

At the Wednesday afternoon session in Memorial Hall, Miss Mildred Klein directed a team of freshman girls in a

(Continued on page 174)

Universal natural milker

Alternates, Like Milking With Hands



Imagine a man with **two hands** on each arm and you have the idea of the alternate action — milking **two teats** at each stroke.

Easy to operate.

Easy to clean.

The most sanitary milker (maid) made.

Thousands giving perfect satisfaction.

Write for descriptive catalog

The Universal Milking Machine Company, Columbus, Ohio



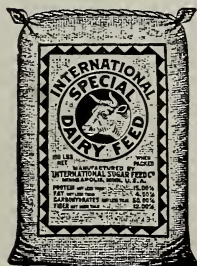
One dairyman who feeds International Special Dairy Feed in place of wheat feeds saves approximately \$50 per month on a herd of 50 cows, and *gets more milk*. What would a saving like this mean to you? Don't envy the extra profits others are making. Use International Special Dairy Feed and get 100% milk flow from your cows.

International Special Dairy Feed Makes More Milk

Every day brings us letters from dairymen praising the high quality of this famous ration. These letters contain such statements as "It produces more milk at less cost," "Won Gold Medal," "Never found its equal," "Got more milk than with any other feed." Statements like these point the way to bigger profits from your herd.

International Special Dairy Feed is a scientifically mixed ration, containing choice grain products, cottonseed meal and molasses. It is guaranteed to satisfy you. Order a trial ton from your dealer. The results will both surprise and please you.

INTERNATIONAL SUGAR FEED CO., Minneapolis, Minnesota
Mills at Minneapolis and Memphis



GRANGE SESSION GLEANINGS

(Continued from page 172)

dumb-bell drill which brought to us recollections of high school days, ah yes, the sweet joys of our childhood days. The fifth degree was conferred by a degree team of University students under the direction of Professor Joel S. Coffey, of the Department of Animal Husbandry. The following were the members of the degree team: S. C. Powers, Master; Bernard Durbin, Overseer; C. A. Shepard, Lecturer; H. R. Martin, Chaplain; Samuel A. Porter, Steward; C. Victor Kendall, Assistant Steward; Margaret Ryan, Lady Assistant Steward; Daisie Cunningham, Pomona; Dorothy Lemert, Flora; Virginia Reamer, Ceres; Lester B. Mayer, Gatekeeper; H. W. Harshfield, Specter. The entire work of the afternoon was very commendable.

Governor Cox gave an address at the

opening of the session in the evening in Memorial Hall. There was tumultuous applause when he declared in favor of the deportation of "mischievous spirits of the nation who seek to undermine the institutions inherited from the fathers who builded the republic."

"When the sky line off Fire Island fades for some thousands of undesirables, we will have the tranquillity of a country duckpond in this country," said the governor.

The governor urged the Grange to use its influence to enlarge the functions of the State Bureau of Markets in order to bring the producers closer to the consumers.

Speaking of the movement in the Grange to bring about the placing on the tax duplicate of intangible property, the governor called attention to the fact that he sought to accomplish

(Continued on page 176)

Prof. Rader's Dancing Calendar

NEIL AVENUE ACADEMY

Take Neil Ave. Car and get off at Poplar Ave.

•647 Neil Ave.—Phones: Citiz. 4431; M. 6189



Beginners' Classes Tuesday evening, January 27, 7:30.

Friday evening, January 9, 7:30.

Afternoon Class Thursdays, 2:30.

Assembly Nights—Mon., Thur., Fri. and Sat.

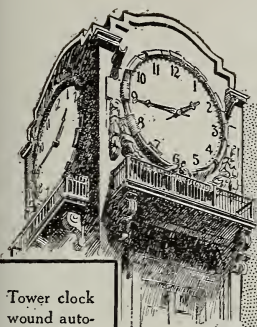
Tuition for Beginners—Per term of 10 lessons, ladies \$5, gentlemen \$6; juveniles, per term of 12 lessons, \$5; private lessons, 5 for \$6.

Tuition can be paid \$1 a lesson until paid. Private lessons can be had afternoon or evening. We aim to teach you to dance in one term.

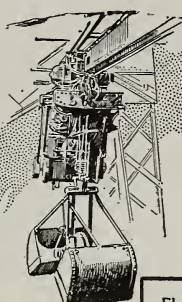
OAK STREET ACADEMY—827 Oak St.

Phones—Citiz. 7105; Residence, Citiz. 4431; Main 6189

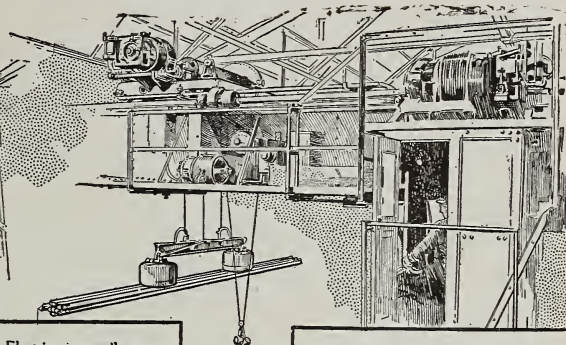
A strictly private place for club dances, card parties and for classes that organize for special instruction.



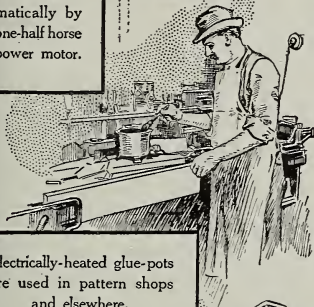
Tower clock wound automatically by one-half horse power motor.



Electric monorail crane for hoisting coal.



Motor-generator set mounted on crane supplying power for lifting magnet.



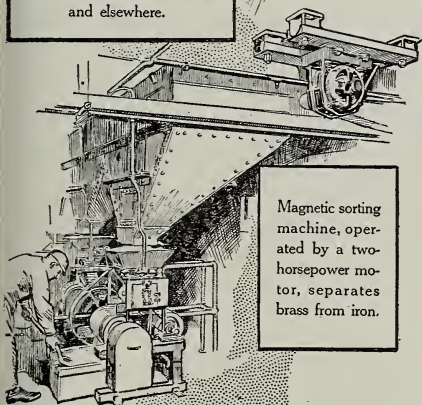
Electrically-heated glue-pots are used in pattern shops and elsewhere.

Electricity— the Master Force in Manufacturing

THE marvels of electricity have revolutionized our manufacturing industries. With belts and pulleys replaced by electric motors operating automatic—almost human—machines, many a slow and tedious process has been eliminated. The factory worker's task of yesterday is made pleasant by his command of this magic power.

The Crane Company's plant at Chicago—electrical throughout—is a model of industrial efficiency. Its 10,000 horsepower of driving energy is brought by three small wires from a distant power plant. Then electricity drives the machinery which handles the coal for heating, cuts the steel, sifts the sand and sorts the material—in fact does everything from scrubbing the floor to winding the clock.

Such an institution is marvelous—superhuman—made thus by the man-multiplying force of electricity. The General Electric Company has been instrumental in effecting this evolution. First, by developing successful electric generating and transmission apparatus to furnish economically this modern form of power. Secondly, through many years of active co-operation with hundreds of manufacturers, it has mastered the art of applying the use of electrical energy to a multitude of needs. And finally, through branch offices and other distributing channels, its products are made accessible to all.

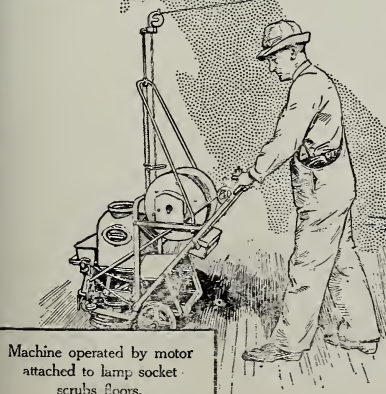


Magnetic sorting machine, operated by a two-horsepower motor, separates brass from iron.

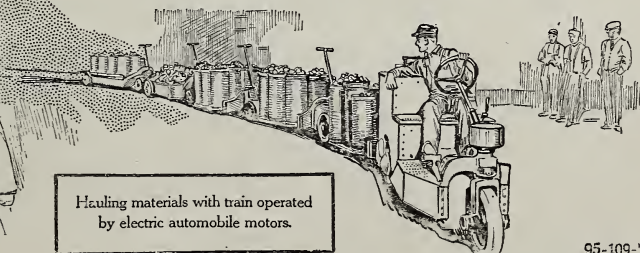
General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in
all large cities.



Machine operated by motor attached to lamp socket scrubs floors.



Hauling materials with train operated by electric automobile motors.

95-109-7

this result a few years ago through the Warnes law, but that it did not meet with favor among the country people.

In commenting upon the large class that was to receive the sixth degree the governor said that it was a hopeful sign that so many young men were coming into the Grange. "It means that more of the boys have remained on the farm and this is a good thing for the country and the world."

After the governor's address a class of 814, the largest class in the history of the State Grange, received the sixth degree. University Grange holds the record for contributing the largest number to this class, there being about 200 students in the class.

Brant Erley, '17, is now connected with the Rural Economics Department of O. S. U. He is working for the government and at present is organizing a cost account circle in Medina Co.

Professor Harry C. Ramsower, head of the Department of Agricultural Engineering, was officially appointed director of agricultural extension to succeed Clark S. Wheeler, at a meeting of the Board of Trustees recently. Professor Ramsower assumed his new duties January first. Professor Ramsower received his B. Sc. at O. S. U. in 1906, and since then has been connected with the Agricultural Engineering Department, being in complete charge since 1913.

Professor Frederick W. Ives of the same Department has been selected as successor to Professor Ramsower as head of the Department.

The staff of THE STUDENT is in need of men who are especially interested in agricultural journalism work. The work offers valuable experience and training for the amateur agricultural journalist.

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Agriculture at the*

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Eight Places as Ohio Champions

We Have Young Bulls of This Breeding
For Sale Now.

Lothian Maggie DeKol 90209

Milk, Two Years, 52,058.1

Butter, 2258.07

WORLD'S RECORD

Novelty McKinley Hengerveld, 183356

Sr. 3—Eight Months After Calving

WORLD'S RECORD

THE LOTHIAN-RIVERODE STOCK FARMS

Novelty, Ohio

Holstein Friesian Cattle

ALEXANDER WATT
Novelty, Ohio

LEWIS M. WILLIAMS
Chagrin Falls, Ohio

THE SOILS DEPARTMENT'S

TREAT FOR FARMERS' WEEK

The Soils program for Farmers' Week will emphasize the use of fertilizers, and fertilizer agents are especially urged to attend the lectures which will be given at two and three o'clock each afternoon of the week. Monday, C. G. Atwater will discuss The Outlook of Sulfate of Ammonia, and Friday, A. E. Eggert will talk on the Supply and Demand for Nitrate of Soda. Tuesday and Wednesday will be Phosphate days, with Spencer L. Carter speaking of Acid Phosphate, Tuesday, and D. V. Brown, The Phosphate Rock Industry on Wednesday. On Thursday afternoon both lectures will be given by C. H. McDowell, president of the Armour Fertilizer Works. His first lecture will concern mixed fertilizer, and the second the use of potash.

Other speakers who need no comment are Director Thorne, who will give the two o'clock lecture on Monday; W. D. Zinn, who will speak Friday, and S. K. Johnson, of the State Bureau of Feeds and Fertilizers, who speaks Tuesday.

A talk which will be of special interest will be "The Young Farmer and the Fertility Problem," Wednesday, by Leonard Hill. Mr. Hill, who will be remembered as a former student in the College of Agriculture, is now farming near Piqua, Ohio.

Earl Barnes assumed his duties with the Soils Department January 1, 1920. He will have charge of the soils work with the County Agents of the twenty-two counties of Southwestern Ohio. Mr. Barnes was formerly a graduate assistant in the Soils Department, but during the war was County Agent of Sandusky County.

Bell No. 1746

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Chocolate Butter Creams
and Bitter Sweets*



**Our Chocolates and Bon Bons
Are Made Fresh Daily.**



**We Also Carry a Full Line of
Salted Nut-Meats, Ice Creams
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HANSEN'S

Dairy Preparations

PURE, concentrated, ready to use, absolutely reliable. Giving uniformly best results in the country's finest creameries and cheese factories.

For Cheese-Making: Hansen's Rennet Tablets, Junket Tablets (for Cottage Cheese), Cheese Color Tablets.

For Butter-Making: Hansen's Danish Butter Color (4 oz. and 1 oz. bottles), Hansen's Buttermilk Tablets or Lactic Ferment Culture for perfect ripening of cream for butter and milk for cheese and commercial buttermilk.

Sold by drug and dairy stores, or direct by

CHR. HANSEN'S LABORATORY

Incorporated
Little Falls, N. Y.

Interesting treatises, "The Story of Cheese,"
J. D. Frederiksen, free on request.

Pedigree only has never made any sire permanently great.

**But Countless Are the Sires That
Have Made Themselves Great.**

The sire that appeals to us is the one that builds his reputation upon the performance of his daughters and does not have to rely upon the reputation of his ancestors. Finderne Pride Fayne has proven himself through the work of his daughters, one of them making over 37 lbs. and another becoming leader of her state for milk production in her class.

You can buy a son of FINDERNE PRIDE FAYNE with a full knowledge that he is **making himself great.**

Meadow-Holm Farm

PETER SMALL
Chesterland, O.

H. B. GOODING
Tiffin, O.

At the last meeting of the University Grange the following officers were elected for the coming year: Grange Master, Ormann R. Keyser, Sophomore Agriculture; Overseer, Chas. G. Clark, Junior Agriculture; Lecturer, Helen E. Steele, Senior Agriculture; Chaplain, Prof. H. E. Erdman of the Department of Rural Economics; Steward, C. Victor Kendall, Junior Agriculture; Assistant Steward, William L. Henning, Junior Agriculture; Lady Assistant Steward, Margaret Ryan, stenographer in Dean Vivian's office; Gatekeeper, Parker Hess, Sophomore; Secretary, True G. Watson, Secretary of the College of Agriculture; Treasurer, Hugh G. Baumgardner, Sophomore Agriculture; Ceres, Lucile J. Manney, Junior Arts; Pomona, Dorothea M. Lemert, Junior Agriculture; Flora, Ruth Miller, Junior Agriculture.

OUR NEW STADIUM.

In a recent issue of the Columbus Chamber of Commerce Bulletin they offer their full support to the project to provide the Ohio State University with a new field including a stadium of 52,000 capacity. This will cover 92 acres and extend from King Ave. to Woodruff Ave. and cost approximately \$1,500,000, of which \$600,000 will be spent on the stadium and \$400,000 on the gymnasium. Details for financing the project have not yet been determined. However, since the Columbus business men are ready to endorse the project financially, certainly the Alumnae, when given the chance, will stand by to do their part. Let's get together and push this thru for the next football season!

It does not Sour the Soil

NITRATE leaves no mineral acid residue to injure your soil.

Nitrate of Soda

Use 100 lbs. per acre for seeded crops and 200 lbs. cultivated in thoroughly for hoed crops.

Dr. William S. Myers

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Progress Laundry

**DRY CLEANING
PRESSING
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**The Place That Always Gives
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The BLACK New HAWK

MANURE SPREADER

Represents the last word in Manure Spreader Construction,
embodying these special features:

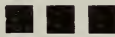
Short Wheelbase

Light Draft

Ease of Operation

Strength and Durability

If interested, full information can be had by calling on any
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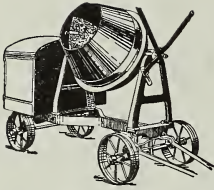
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General Offices, SOUTH BEND, INDIANA, U. S. A.

Works at South Bend, Ind.

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MEN'S WEAR AND HATS

COLLEGE JEWELRY, PILLOWS and PENNANTS

The *MENSWEAR* Shop ELEVENTH AND HIGH
SIXTEENTH AND HIGH

Choice Seed Corn

We can supply choice seed at a cost of about 70 cents per acre.

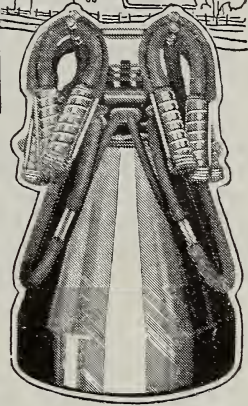
We have a number of varieties, including such popular sorts as Reid's Yellow Dent, True Yellow Leaming, True Yellow Clarage, Livingston's Golden Surprise, Nellers Cattle, Johnson Co. White, Mammoth White Dent, etc. Good, strong germination.

Now is the time to again supply your wants with your old, well-tested favorites. We feel that all varieties offered are very true to type.

Sample grains free on request. Mention varieties and quantities in which you are interested. Catalogue of 96 pages with "True Blue" descriptions tells when to plant and how. Free. Write for it.

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“Happy as a Lark!”—Pete Robinson

“I am happy a a lark now, since I got my Perfection Milker,” says Pete Robinson. “I have used two different kinds of milking machines, but I find the Perfection superior to both. The construction of the teat cup, the manner in which it draws the milk, the small amount of vacuum required and the adjustment to suit different cows puts the Perfection in a class by itself. In my opinion there are only two classes of milking machines—The Perfection and all others.”

Get Rid of Hand Milking

Wouldn't you be a happier man if you could get rid of milking by hand? There are thousands of Perfection owners like Pete Robinson who are rid of milking drudgery forever.

The Perfection and one man take the place of from 3 to 5 men milking by hand.

It is so simple that your wife or daughter can easily handle it.

You, too, will be “Happy as a lark” when you have a Perfection to help you.

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Find out about the Perfection Milker. Why worry over the way to get the milking done when the Perfection will milk for you and pay for itself in the wages it saves.

Write us and we'll send you names and addresses of Perfection owners to whom you can write, together with a free copy of “What the Dairyman Wants to Know,” the great book that answers every question about milking machines. **Why milk by hand?**

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We Alter and Repair Garments

BEST DRY CLEANING DONE IN OUR OWN PLANT.

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Both Phones

Prompt Delivery Service

Doubly Welcome

you are when you come with a box of our toothsome candies. Every woman's heart melts at the sight of luscious sweets, such as we sell. Step in today and get a pound or two-pound package as a special gift for her. Select your own assortment if you like.

HENNICK'S

AT THE GATE OF THE CAMPUS

CLUB PINS for Boys' & Girls' AGRICULTURAL CLUBS

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STATE AND HIGH STREETS

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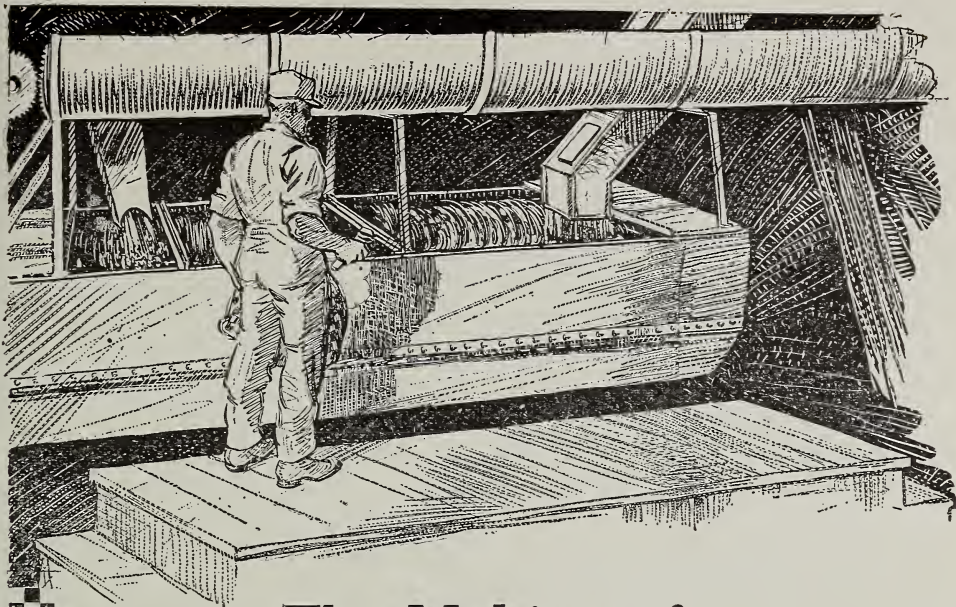
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You can insure against the dangers of improperly mixed feeds and also against off-quality grains by adopting

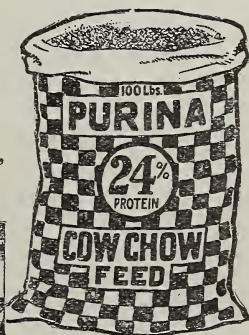
Purina Cow Chow

as your standard cow ration. Every ingredient in this perfectly balanced ration not only meets the test of quality, but is also distributed in just the right proportion to produce the best results in milk-making. Quality of ingredients, plus accurate measurement and thorough mixing, combine to produce a feed which increases a cow's milk flow and maintains it at a maximum.

Purina Cow Chow is sold in the better class of feed stores. The Purina dealer is a man in whom you can place absolute confidence. If you have difficulty in procuring Purina Cow Chow, write to

PURINA MILLS
RALSTON PURINA CO., PROP.,
St. Louis, Mo.

Sold in Checkerboard
Bags Only



LEGUME HAY GOOD FEED FOR BROOD SOWS

That clover and alfalfa hay are beneficial in rations for wintering brood sows is the conclusion of W. L. Robinson, swine specialist at the Ohio Experiment Station. When fed to swine for this purpose, the alfalfa or clover hay is placed in wooden racks low down on the ground so that the animals may secure it easily.

Both clover and alfalfa have given satisfactory results when fed with corn to brood sows. The hay takes the place of a part of the more expensive grain ration, the common method being to give the animals a rather light ration of corn and plenty of hay and a little tankage. If no hay is fed, a somewhat larger amount of grain will be needed.

Brood sows on corn alone usually produce pigs of lighter weight and

smaller bones, while those receiving hay and some tankage, as a supplement to the corn, produce strong, vigorous pigs with plenty of vitality. One satisfactory ration tried consisted of corn 14 parts, tankage one part, and what clover hay the animals cared for.

Practice teaching in the training schools during the three weeks preceding the Christmas vacation was done by the following students: O. E. Barker, at Worthington; A. E. Halterman, at Canal Winchester; J. K. Graham, at Grove City. Immediately following the holidays, C. E. Rowland will begin the work at Grove City; T. R. Brownlee at Canal Winchester, and B. M. Durbin at Worthington. During his practice teaching period, each practice teacher has charge of one of the two vocational agricultural classes, under the supervision of the training teacher.

FOR GOOD THINGS TO EAT

—GO TO—

MARZETTI'S RESTAURANTS

Where Only the Best is Served

TENTH AVE. AND HIGH ST.
Seating capacity of Table service 300
Separate Ladies' Dining Room

59 EAST GAY STREET
Seating capacity of
Table Service 125

**CHICKEN, STEAKS, CHOPS, TURKEY, RABBIT, LOBSTER
AND SEA FOOD,
SPAGHETTI, RAVIOLI, POLPETTE, ETC.**

Special Dinners Lunches Plate Dinners



Placing the reinforcing steel of the door opening.

A Natco Silo

*Costs a Little More—
Lasts a LOT Longer*

IT does cost more to build with everlasting Natco Hollow Tile than with materials that soon decay, but it's far cheaper in the long run. A Natco Silo will not rot, burn, burst or blow down. It has no hoops to tighten, needs no painting and seldom any repairs. You can pass a Natco Silo to your children practically as good as new. Or the farm will bring more should you wish to sell.

What do you intend to build? One of our farm building plans may help you—FREE while they last.

Farmers who figure costs closely are using Natco Hollow Tile for silos, dairy barns, hog houses, dwellings, etc. Our book "Natco on the Farm" describes and pictures many such uses. Send for it today—no charge. Ask your building supply dealer to quote you on Natco Hollow Tile.

National Fire Proofing Company
1208 Fulton Building
Pittsburgh, Pa.

*23 Factories assure a wide
and economical distribution*



Foundation and bottom courses of a Natco Silo. Note the still air spaces and the steel reinforcing bands.

WINTER MANAGEMENT OF BREEDING EWES

Experience has shown that ewes should always be healthy, have good teeth and be strong and vigorous. They should carry a moderate amount of flesh and it is essential that they be so cared for that they will not lose weight during the winter. Well fed ewes are most likely to give birth to strong, vigorous lambs. Ewes that are in good condition will be more liberal milkers and thus better mothers.

To be sure to have them in proper condition we must begin in the fall and feed them properly thruout the winter. This cannot be accomplished in just a few days or even a month.

They should receive liberal amounts of feed during this period, yet a large portion of their rations may be made up of cheap feeds of little commercial value. On most farms there are pastures, stubble fields and corn stalks to

be utilized. Blue grass and timothy pastures may be grazed part of the time, but it is safer not to depend on these as the only feeds at this time.

When the ewes are in thin condition, it will be advisable to begin feeding grain along with roughage soon after the first of December. Unless the ewes are very thin in flesh, it is not necessary to feed more than a half pound a head daily for ewes weighing 150 pounds. A good ration consists of equal parts of oats and bran or two parts of oats, two parts of bran and one part of corn. Where available, it may be economical to feed one-half to two pounds of good clean corn silage per ewe per day and about the same weight of clover or alfalfa hay. Where a good legume, such as clover, alfalfa or soybean hay makes up the major portion of the roughage, it will probably not be necessary to give the ewes

(Continued on page 190)

Making EXPERT DANCERS

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Mr. Moyles and his assistants make a specialty of private personal instruction in the Modern Dances. A few hours with them will impart that "snap," "smartness" and "modernism" to your dancing which denotes style and which otherwise you cannot acquire.

Appointment can be made for any day or evening.

Assembly Dances, K. of C. Hall, State and Sixth Streets, Every Saturday Night.

Take Oak Street car and get off at Sixth St.

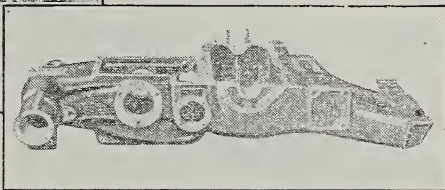


Illustration shows Case 10-18 Kerosene Tractor pulling 2-bottom Grand Detour Plow.



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Our Trade Mark

Below: Showing the Main Frame of the CASE 10-18 Tractor, cast in a single piece. Holes for bearings on each side of frame are bored in one operation by a special machine of remarkable accuracy.



CASE—The Tractor with Strength that Backs its Power

One of the outstanding features of superiority of the Case 10-18 Tractor is the rugged strength of its construction.

Now, bear in mind the difference between *Strength and Power*.

When you think of the Tractor you have, or the Tractor you ought to have, you probably consider it in terms of power.

Right!—as far as it goes. The proper proportion of power to work is an absolute essential to

economy and efficiency of Tractor operation. But tractor Strength, as embodied in the Case is the factor that stands between you and repair bills and the more serious losses due to breakage or delays. For instance, the frame of the Case 10-18 Tractor is cast in a single piece. In this one casting are fitted the bearings for transmission, rear axle and motor. Obviously, bearings, shafting and gears cannot get out of line. Once in place, they are in correct alignment throughout the life of the tractor.

Other Features of the CASE 10-18 Kerosene Tractor

Four cylinder motor, mounted crosswise. Eliminates bevel gears, chain or worm drive. Simple and accessible clutch, pulley mounted on crank shaft,—where it belongs. It is on the same side with the steering gears making it easy to line up with belt driven machinery. Automatic control of motor temperature assures fuel economy.

Cut steel gears running in oil and dust-proof throughout.

Hyatt Roller Bearings.

Worm-driven fan with friction safety clutch.

Two speeds: $2\frac{1}{4}$ and $3\frac{1}{2}$ miles per hour.

The Case 10-18 Tractor will most economically handle such work as operating a 2-bottom plow (as illustrated); 22 shoe grain drill; two 6 ft. binders; 8 ft. double-action disc harrow; the largest manure spreader; Case 20x28 thresher with feeder and wind stacker; feed mill, or any other

machinery of similar power requirement. Write for booklet illustrating complete details of Case 10-18 construction. It will acquaint you with the special advantages of the Case 10-18 and enable you to judge all tractors with a new understanding. Free, on request,—a post card will bring it.

To avoid confusion, the J. I. CASE THRESHING MACHINE COMPANY desires to have it known that it is not now and never has been interested in, or in any way connected or affiliated with, the J. I. Case Plow Works, or the Wallis Tractor Company, or the J. I. Case Plow Works Co.

J. I. CASE THRESHING MACHINE COMPANY, Inc., Dept. CL-1, Racine, Wis.

Making Superior Farm Machinery since 1842

NOTE: We want the public to understand that our plows are NOT the Case plows made by the J. I. Case Plow Works Co.



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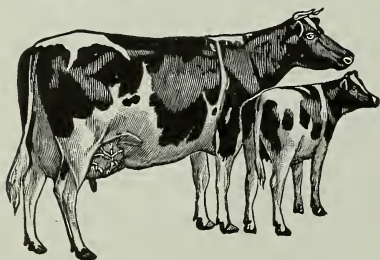
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This instructive, illustrated 24-page pamphlet contains illustrations of high record Holsteins, Guernseys, Jerseys, and Ayrshires, also the five highest 7-day Holstein records; a synopsis of yearly records from 600 to over 1,000 lbs. fat; the leading cows of each breed for yearly production in seven classes; ten highest record cows of each breed; the average yearly breed production from a summary of 2,387 Holstein, 4,086 Guernsey, 4,297 Jersey, 1,752 Ayrshire, and 121 Brown Swiss records.

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Holstein-Friesian Association of America
F. L. HOUGHTON, Sec'y.
154 Holstein Building, BRATTLEBORO, VT.

WINTER MANAGEMENT of EWES

(Continued from page 188)

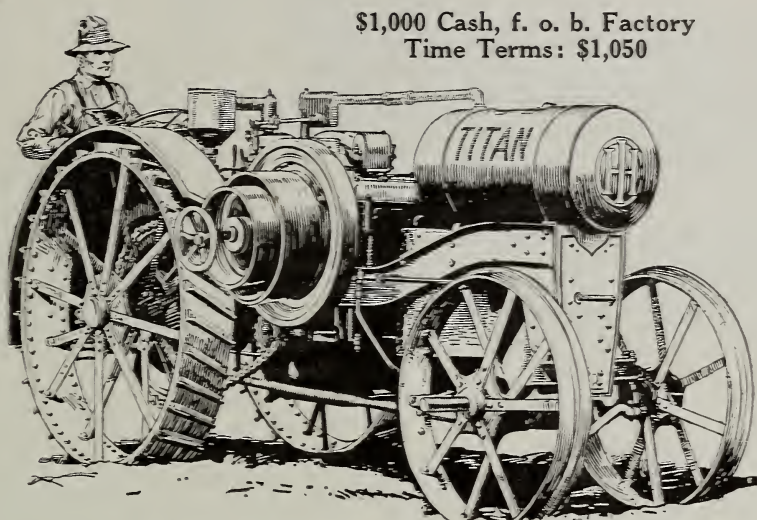
that are in good condition, any grain until about six weeks before lambing. At this time, it may be well to feed the ewes a little grain, about one-quarter pound a head daily of equal parts of corn and oats. In any event, in compounding rations the farmer must realize that economy and efficiency should be the watchwords and feed enough to have the ewes gain from 15 to 25 pounds each during the winter.

During Farmers' Week there will be three Big Four cars displaying Home Conveniences on the University switch for the inspection of visitors. Immediately after that week, on Feb. 2, these cars with two others to carry lecturers and sleeping and eating conveniences, will leave on a six weeks' tour of all important cities on the New York Central Lines in Ohio. There will be representatives of leading companies as electric light plants, etc., and specialists from Agricultural Engineering and Home Economics Department. At each stop lecturers and demonstrations will be given.

A WEE BIT SCOTCH

(Continued from page 157)

These delightful traits may all be used as tricks of the trade, but be that as it may, the fact remains that we will continue to look toward this rough little country as the producer of something better than its neighbors. Nor is there the least worry about losing such honestly gained prestige. True, the United States, Australia and the Argentine are mighty hardy infants in the pure bred line, but when asked if one or the other in time won't outclass the Scot, just take a tip and be Scotch enough to say "I'm dootin'."



\$1,000 Cash, f. o. b. Factory
Time Terms: \$1,050

The Successful Tractor

must have provision to handle with equal advantage every drawbar and belt-power task on the farm.

THE TITAN 10-20 KEROSENE TRACTOR HAS:

A drawbar with a wide range of adjustment both up and down and sidewise so that it will pull a plow, harrow, binder, wagon or any other machine or implement with equal advantage;

A friction-clutch pulley, so placed that the tractor can be backed into the belt quickly; so placed, too, that the belt does not drag on the ground nor rub against any part of the tractor. Pulley has a wide face and broad diameter to insure against belt slippage;

A throttle governor that regulates the fuel to the load variations—no one required to adjust fuel when engaged in belt work.

If you are interested in advanced agricultural engineering practice let us tell you more about the **Titan 10-20** which is the final expression of fourteen years of continuous tractor manufacturing experience and a thorough knowledge of all farm requirements gained through almost 90 years of general farm-machine building experience.

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Binders	Hay Loaders
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Riding	Plows:
Two-row	Walking
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Grain Drills	Tractor
Grain Elevators	Stalk Cutters
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Drag	Farm Tractors
Spring Tooth	

Get Full Performance From Farm Implements

Your farm implements, taken all together, form a great crop-making machine, each part of which is dependent on the other. The whole is no better than the poorest implement in it.

Poor seed-bed making by an inferior plow, for instance, will make it impossible for your planter and cultivator to give the profit that they should give.

Likewise, inaccurate planting will lessen the returns from the best of seed beds and thorough cultivation.

And a cultivator that will not destroy weeds and conserve moisture without injuring the crop plants cuts the profit from the use of your other implements.

Get full performance from every one of your implements.

You can do that by specializing in the use of John Deere implements.

There is a John Deere implement or machine for practically every farming operation. Look over the list above. These implements are the product of 83 years of successful experience in meeting the requirements of farmers in all sections. They are built to maintain the long-established John Deere reputation for giving the user the greatest final returns on his investment.

When you leave school and start to farming for yourself, make your John Deere dealer's store the gateway to an especially satisfactory investment—a John Deere implement for every one of your farming operations.

John Deere, Moline, Illinois



Your Professor of "Ag" Engineering will tell you that SERVICE is the first essential requirement of a Farm Tractor.

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Combines

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making not merely a Tractor, but a complete
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More and better DE LAVALS will be made this year than ever before—as many as available plant additions and skilled workmen can produce—but the demand gives every indication of being even greater still.

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